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## I LIST OF PRESENCE SUB-DISCIPLINES

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## 2 COMMUNITY MEMBERS

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### 2.1 Dr. Abderrahmane Kheddar

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#### Research interests

Prof. Abderrahmane Kheddar is the head of the VR and Haptics group at the CNRS – LSC and the codirector of the AIST/CNRS Joint Japanese French Laboratory at Tsukuba, Japan. His research interest includes: inclusive haptics interface design, computer haptics (constraint based force computation, tactile and thermal feedback, real-time collision detection), augmented reality haptics, haptic behavior enhanced virtual avatars, haptic communication, and more recently, humanoid robotics, visuo-haptic manipulation, contact support based planning. He is a member of the Touch-HapSys EC project, the ImmerSense IP EC project (FP6), the INTUITION NoE (FP6) and the coordinator of the Robot@CWE STREP (FP6). He coordinated the two national AS CNRS project on haptic and collision detection. He was the general chair of the EuroHaptics 2006 and the cochair of the IEEE ROMAN 2001.

### 2.2 Mr. Aleksander Våljamäe

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#### Research interests

Aleksander Våljamäe is a final year PhD candidate at Chalmers Room Acoustics Group - multisensory applications (CRAGmsa), Chalmers University of Technology, Göteborg, Sweden. In 2005 he has received Tech. Licentiate degree for the work entitled "Self-motion and Presence in the Perceptual Optimization of a Multisensory Virtual Reality Environment". His research topics include multisensory interaction and perceptual fill-in mechanisms in the perceptual/cognitive optimization of the multimodal environments. He took an active part in the recently finished EU project POEMS (Perceptually Oriented Ego-Motion Simulation) and is currently studying multisensory perception within the EU project PRESENCCIA (Presence: Research Encompassing Sensory Enhancement, Neuroscience, Cerebral-Computer Interfaces and Applications).

### 2.3 Dr. Annie LUCIANI

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#### Research interests

Annie Luciani current research activities are on the following fields of Interest

Presence and believability of multisensory-handled Virtual objects. Technological, psychological and cognitive conditions. Dynamics and geometry. The respective role of the space and time. Temporal latencies, Temporal accuracy. Spatial accuracy. Shapes and time. Shapes as emergent spatio-temporal phenomena.

Physically-based models for computer animation and VR. Design and implementation of real-time physically-based models of complex dynamical phenomena (turbulences, chaotic effects, emergent phenomena, fractures, crowd's behaviour, etc.)

Design of multisensory virtual objects (3D, haptics and sounds)

Gesture and motion capture, coding, analysis, representation.

Design of technologies for high-fidelity and versatile force feedback devices (since 1976)

- Implementation of real time multisensory-motor simulation (including the use of gestures, 3D objects and sounds)

Interactive design Software for musical, visual and choreographic arts

Cognitive sciences en psychophysical experiments in haptics, sounds, visual motion

### 2.4 Ms. Antonia Lucinelma Pessoa

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#### Research Interests

Antonia Lucinelma Pessoa Albuquerque has a background in civil engineer, with a MSc in Computer Graphics, from PUC-Rio University, emphasizing Virtual Sets technologies, and a PhD in Science-Informatics, approaching Presence in virtual interactions and stereoscopic visualization. Since 1996, she has been focusing on research areas that relate virtual and real; from 2001 she researches on remote human interactions, and new media technologies. The main research interests are Presence in virtual environments, people-to-people remote interactions, virtual reality, visual computing, and more recently, perception, human aspects, especially natural binocular human vision. Her ideal research goal is to enrich computational systems by adding features based on neurosciences and psychophysics research results.

### 2.5 Prof. Antonio Frisoli

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#### Research interests

The main research interests of Antonio Frisoli are in the field of virtual reality, simulation and advanced human computer interfaces for rehabilitation and medicine, cultural heritage, education and training, industrial applications and is currently involved in several European and national research projects in this field.

He is currently investigating the role of gesture and haptics in highly immersive virtual environments, and within an action-oriented theory of perception he is studying how the action-perception loop can reinforce the sense of agency and ownership in Virtual Environments.

Within his group, he is devising new concepts of haptic interfaces for the fingerpad and the whole hand, and exploiting perceptual issues to elicit haptic illusions. He is also applying virtual reality and exoskeleton devices for functional rehabilitation in epileptic and after-stroke patients.

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## 2.6 Dr. Aureli Soria-Frisch

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### Research interests

Aureli Soria-Frisch was born in Barcelona in 1969. He received the 'Dr.-Ing.' degree (equivalent PhD) from the Technical University Berlin in 2005.

He is author of six journal papers, three book chapters, and several conference papers. His research interest is focused on the application of computational intelligence, which combines neurocomputing, fuzzy computing and evolutionary computation methodologies in the deployment of real world applications, on the fields of computer vision and EEG analysis. Particularly his expertise excels in color image processing, texture analysis, bio-inspired image processing, content-based image retrieval, classifier ensembles for biometrics. Moreover he is interested in any topic related to data fusion and pattern recognition.

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## 2.7 Dr. Brian F. Goldiez

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### Research interests

Brian Goldiez focuses on augmented reality systems employing wearable (or handheld) computers or ubiquitous computing environments. Both wearable's and ubiquitous computing offer their own technical challenges. Dr. Goldiez research involves studies in optimizing existing AR system resources and identifying and filling technology gaps. In this regard his research is focused on approaches and strategies that optimize human performance with various interface devices in areas such as navigation and wayfinding, search and rescue, and other mobile tasks. Dr. Goldiez research involves measurement of effectiveness of various AR implementations, including presence, in these environments. He is currently involved in research approaches for measuring presence across different wearable systems including collaborative interactions with robotic entities. Goldiez is also directing a doctoral student's research into the utility of presence when one is repeatedly inserted in virtual environments for training purposes. Goldiez has recently completed an AR research agenda for training that includes presence. This program was sponsored by the US Army Research Institute for Behavioral Sciences. Goldiez teaches a course in VR.

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## 2.8 Mr. Christian Peter

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### Research Interests

Christian Peter obtained his Masters Degree (Diploma) in Electrical Engineering in 1996 from the University of Rostock, Germany. From 1997 to 2000 he was researcher at the Computing Laboratory of Oxford University, UK in the field of hardware development and systems design for novel sensor technologies. Since 2000 he is with Fraunhofer IGD Rostock, focusing his research on the development of intelligent, self-contained, non-obtrusive sensors for affect-related physiological parameters and the analysis and application of the obtained data. His related scientific interests lie on: physiology of emotions, particularly (peripheral) psycho-physiological changes in users while interacting with computer systems; emotion representation in digital systems; emotion-related speech analysis; and networking of affect sensors and affective output devices.

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## 2.9 Prof. Chris Raymaekers

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### Research Interests

The research of Chris Raymaekers focuses on multimodal interaction in virtual environments and is situated within the domain of human-computer interaction.

Within this research, new interaction paradigms are developed and evaluated. This includes selection techniques, navigation techniques and hybrid 2D/3D user interfaces. Over the past few years, much attention has been paid to haptic interaction. Recently, feedback by using audio output is also one of the research topics. The goal is to realize a functionally and usable multimodal user interfaces.

As the creation of virtual environments and interaction techniques is a difficult task, attention is also paid to support for developers and designers. Based on a model-based user interface development (MBUID) approach, we have developed NiMMiT, a graphical notation, which allows designing multimodal interaction technique, without having to manually implement them.

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## 2.10 Dr. Christoph Klimmt

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### Research Interests

My primary research interest is media entertainment, and I have been working on video games, because they unite issues of media enjoyment with issues of virtual reality and Presence.

I am doing theoretical and empirical work to explore the relationship between Presence and entertainment, also in contexts of non-interactive entertainment media (e.g., television) and in regard

to future entertainment systems (such as home cinema). I have been involved in theory construction on Spatial Presence (which will appear in "Media Psychology" in 2007) as well as in various

conceptual initiatives on media enjoyment. As social scientist with a background in communication and media psychology, I am also interested in other user responses to Presence applications beyond

entertainment, such as learning or aggression. Methodological issues (how do we measure user experience in virtual media and the psychological and social effects of Presence applications?) are also

major fields of my work related to Presence.

#### 2.11 Mr. Clemens Kuhn

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### Research interests

sonic emotion is specializing in 3D audio reproduction for virtual reality as well as for mixed and augmented reality applications. The main fields of research concern:

- binaural 3D audio reproduction including headtracking
- room simulation and distance perception
- loudspeaker perception and "non-mediation"
- perceptual approaches to 3D sound reproduction using loudspeakers including stereophonic techniques, ambisonics, and wave field synthesis
- physical sound field modelling using wave field synthesis
- DML loudspeaker technology for invisible integration of loudspeakers into walls or cabinets.

#### 2.12 Prof. David Benyon

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### Research interests

David Benyon's research focus since joining Napier University in 1996 has been to shift attention from a narrow view of human-computer interaction (HCI) to the idea of 'navigation of information space'; a new

view of HCI that focuses on how people find their way around the information spaces created by new media. He has just finished working on a major text book called *Designing Interactive Systems*. Co-authored with Phil and Susan Turner, this was published in November 2005. He has a book for MIT Press (published in 2007 and co-authored with Manual Imaz) on HCI theory called *Designing with Blends: conceptual foundations of human-computer interaction and software engineering*. The main focus of this work is currently artificial companions for older people, and virtual environments. This has encouraged an exploration of the demands of different people and on understanding the design aspects of virtual places that give people a sense of presence.

#### 2.13 Mr. Gianluca Zaffiro

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### Research Interests

Gianluca ZAFFIRO joined Telecom Italia LAB in 1994. Currently he works in the Research & Trends department, where he is doing research on Telecommunications trends, defining scenarios of ICT evolution and their impact on communication biz. In the previous years he worked to support strategic technology innovation in the Mobile Service area of TIM, with special focus on Mobile Instant Messaging, a communication messaging service based on Presence, that was launched by TIM in 2000. His interests spreads include how to improve mediated communications and how this would have an impact on the telecommunications business, trying to figure out how telecommunications in the future will evolve exploiting Presence technologies and other technical improvements.

#### 2.14 Prof. Giorgio De Michelis

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### Research interests

Giorgio De Michelis research interests focus on the following topics:

- Multimedia mobile and ubiquitous applications supporting cooperation and knowledge management within professional organizations and/or social interaction within communities
- Systems supporting multi-disciplinary design processes in areas like architecture, design and ICT applications.
- Augmented reality systems for distributed multi-sensorial games.
- Technologies for contemporary art.

#### 2.15 Dr. Giulio Ruffini

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#### Research interests

Starlab interests for the next year include further progress in sensor development (EEG/ECG) for use in real life and in VR applications (wireless, wearable sensors), computational neuroscience research (in particular, brain connectivity analysis) and computational intelligence as tools for the development of brain computer Interfaces, biometry applications and Presence related applications.

#### 2.16 Prof. Igor Pandzic

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#### Research interests

Igor S. Pandzic is an Assistant Professor at the Department of Telecommunications, Faculty of Electrical Engineering and Computing, University of Zagreb, Croatia. His main research interests are in the field of computer graphics and virtual environments, with particular focus on facial animation, embodied conversational agents, and their applications in networked and mobile environments. Igor also worked on networked collaborative virtual environments, computer generated film production and parallel computing. He published three books and around 60 papers on these topics. Igor was one of the key contributors to the Facial Animation specification in the MPEG-4 International Standard for which he received an ISO Certificate of Appreciation in 2000.

#### 2.17 Dr. Ilona Heldal

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Gothenburg  
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#### Research Interests

Ilona Heldal is PhD and Assistant Professor at the Department Technology, Management and Economics at Chalmers University of Technology, Gothenburg, Sweden. Her interest in improving telecommunication to better support human communication comes from earlier work with designing mobile communication systems at Ericsson AB. Now she has 8 years experience in research and teaching on social interaction and group collaboration in new media, with special focus on examining presence, user experiences, and usability in virtual environments. One of the main challenges in her interdisciplinary research is to understand and take advantage of the impact of collaboration context on experiences and effectiveness.

#### 2.18 Prof. John Alexander Waterworth

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Department of Informatics

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#### Research interests

John Waterworth Interest areas:

- Older Users, including the development of technologies for safe independent living.
- Cognition and ICT, including the use of appropriately designed interactive technology for the maintenance and improvement of cognitive functions. This topic is also highly relevant to the ageing society.
- Interaction and Emotion, including sensing and interpreting emotions, and environments that evoke emotion in their users. Models of emotion and interaction.
- Functioning in Physical/Virtual Mixed Spaces, including issues relevant to functional and safe existence and travel in and through such blends. How do we create a blended sense of presence that takes account of attentional limits and characteristics, reality judgments and emotional responses?
- Physical Rehabilitation, through the application of new “embodied interaction” possibilities. Wearable and other interaction devices. Design, development, testing of effects.
- Inclusion and eAccessibility, for all age groups and abilities

#### 2.19 Dr. Jörg Voskamp

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#### Research interests

Dr. Jörg Voskamp studied electrical engineering at the technical universities Sophia (Bulgaria) and Dresden (Germany) and finished his studies in 1993 with diploma. He works with Fraunhofer IGD Rostock since 1993. He is head of the department Human-Centered Interaction Technologies since 2000. In 2004 he received his Dr.-Ing. from the University of Rostock. His research interests are in the development of adaptive and emotion-based computer interfaces as well on the interface technologies.

#### 2.20 Prof. José del R. Millán

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#### Research interests

José del R. Millán is a senior researcher at the IDIAP Research Institute in Martigny, Switzerland, where he explores the use of brain signals for multimodal interaction and, in particular, the development of non-invasive brain-controlled robots and neuroprostheses. In this multidisciplinary research effort, Dr. Millán is bringing together his pioneering work on the two fields of brain-computer interfaces and adaptive intelligent robotics. He is also an adjunct professor at the Swiss Federal Institute of Technology in Lausanne (EPFL). He received his

Ph.D. in computer science from the Univ. Politècnica de Catalunya (Barcelona, Spain) in 1992, where he was an assistant professor for three years. Prior to joining IDIAP, he has been a research scientist at the Joint Research Centre of the European Commission in Ispra, Italy, a visiting professor at the EPFL, and a visiting scholar at Stanford University. His research on brain-computer interfaces was nominated finalist of the European *Descartes Prize 2001* and he has been named *Research Leader 2004* by the journal *Scientific American* for his work on brain-controlled robots. The journal *Science* has reviewed his work as one of the world's key researchers in the field of brain-computer interfaces. Dr. Millán is the coordinator of a number of European projects in the field of brain-computer interfaces and also is a frequent keynote speaker at international events. His work on brain-computer interfaces has received wide media coverage around the world.

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### 2.21 Prof. Lindsay W MacDonald

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#### Research interests

Lindsay MacDonald is Professor of Digital Media at the London College of Communication. His principal expertise is in colour imaging, including human vision, colour measurement, colorimetry, digital image processing, and colour device characterisation. His research interests are centred on the application of colour imaging techniques to cultural heritage objects, and visualisation of their appearance in different viewing environments and illumination conditions. He is currently researching the nature of colour in 3D surfaces. He was the Principal Investigator of the EC FP5 project "Veridical Imaging of Transmissive and Reflective Artefacts" (VITRA).

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### 2.22 Dr. Manuel Ferre

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### 2.23 Dr. Marc Ernst

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#### Research interests

Scientific area of interest: For perceiving the environment our brain uses multiple sources of sensory information derived from several different modalities, including vision, touch and audition. The question how information derived from these different sensory modalities converges in the brain in order to form a coherent and robust percept is central to understanding the process of perception. Combination and integration of multiple sources of sensory information is the key to robust perception, because no information processing system, neither technical nor biological, is powerful enough to "perceive and act" accurately under all possible conditions.

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### 2.24 Dr. Mariano Alcañiz

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#### Research interests

- Objective measures of presence using medical imaging
- Virtual therapy
- Emotional computing
- Persuasive computing and ubiquitous computing for human well being
- Natural man machine interface and influence on presence
- Seamless integration of AR interfaces

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### 2.25 Prof. Mel Slater

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#### Research interests

My major interest is in helping to find out what makes virtual reality work for people - in the sense that they can engage with one another in virtual environments, and also interact with virtual characters. This involves interaction techniques, experimental methods, and computer graphics. Another main interest is the development of real-time global illumination algorithms for computer graphics.

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### 2.26 Prof. Miriam Reiner

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#### Research interests

Prof. Miriam Reiner is the head of the Technion touch lab. We are interested in how haptics convey information about the environment and how this information is used to construct a hypothesis about presence. Our experiments deal with the principal cues in haptic performance, in tele-manipulation such as in telesurgery, collaborative haptics, and exchange of haptic information for optimal collaboration.

Another group of our experiments look at the neurological and cognitive correlates of haptic performance. We look at the ERP's of haptic perception and performance as related to integration of sensory modalities. Especially we look at the haptic impact on perception in multisensory environment when cues are congruent or not. fMRI studies are performed in order to look at haptic learning, perception and interaction with other modalities such as visual/auditory.

A third group of experiments is focused on the integration of sensory modalities. We study perception and decision making based on sub/liminal sensory cues in virtual and augmented worlds. Other issues related to this group of experiments are learning and training and haptic illusions, such as the Rubber hand illusion applied to Virtual hands in multi and uni-sensory environments.

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### 2.27 Prof. Narcís Pares

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### 2.28 Mr. Nikolaos Uzunoglu

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Nikolaos Uzunoglu obtained his Master in Science and Doctor Philosophy degrees in Electrical Engineering Science at the University of Essex, United Kingdom in 1974 and 1976 respectively. He obtained his Doctor of Science Degree in 1981 at the National Technical University of Athens-Greece in the scientific field of Electro-optic Systems. He was elected as Associate Professor at the National Technical University of Athens (1984) and promoted to Professor in 1987. In 2002 he was elected member of the International Academy for Philosophy and in 2003 Fellow of the Institute of Electrical and Electronics Engineers. The research fields he worked include: Electromagnetic Theory and its Applications in Telecommunications, Sensors, Biomedical Engineering and Remote Sensing. He has designed and developed numerous prototype systems based on novel concepts of electromagnetism. His research work combines theory and experiment. He has published 190 papers in internationally recognized peer reviewed scientific journals and he authored 5 books. He has supervised 60 Ph. D students. He has coordinated more than 40 international research projects mostly in the framework of European Commission activities.

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### 2.29 Mr. Ozan Cakmakci

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### Research interests

Ozan is a student of optics and focusing on the design of head-worn displays in the eyeglass formfactor. His latest design has an 8mm 'exit pupil', 15mm eye clearance, 20 degree full field of view, 1.5 arcminute resolution (based on a 640x480 VGA panel), and uses only 2 plastic optical elements. To his knowledge, this is first display in the world to achieve such specifications.

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### 2.30 Prof. Peter Robinson

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### Research Interests

Peter Robinson's research concerns problems at the boundary between people and computers. This involves investigating new technologies to enhance communication between computers and their users, and new applications to exploit these technologies. He has been leading work for some years on the use of video and paper as part of the user interface. The idea is to develop augmented environments in which everyday objects acquire computational properties through user interfaces based on video projection and digital cameras. Recent work has included desk-size projected displays and inference of users' mental states from video images of their faces.

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### 2.31 Prof. Peter Vorderer

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### Research interests

My primary research interest is media entertainment, and I have been working on video games, because they unite issues of media enjoyment with issues of virtual reality and Presence. I am doing theoretical and empirical work to explore the relationship between Presence and entertainment, also in contexts of non-interactive entertainment media (e.g., television) and in regard to future entertainment systems (such as home cinema). I have been involved in theory construction on Spatial Presence (which will appear in "Media Psychology" in 2007) as well as in various conceptual initiatives on media enjoyment. As social scientist with a background in communication and media psychology, I am also interested in other user responses to Presence applications beyond entertainment, such as learning or aggression. Methodological issues (how do we measure user experience in virtual media and the psychological and social effects of Presence applications?) are also major fields of my work related to Presence.

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### 2.32 Dr. Petros Daras

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### Research interests

Petros Daras was born in Athens, Greece in 1974 and he is a Researcher Grade D at the Informatics and Telematics Institute ([www.iti.gr](http://www.iti.gr)). He received the Diploma degree in Electrical and Computer

Engineering, the MSc degree in Medical Informatics and the Ph.D. degree in Electrical and Computer Engineering from the Aristotle University of Thessaloniki, Greece, in 1999, 2002 and 2005 respectively. His main research interests include Computer Vision, search and retrieval of 3D objects, Object recognition,

Bioinformatics and medical informatics. He has been involved in more than 10 European and National research projects. Dr. Daras is a member of the Technical Chamber of Greece.

### 2.33 Prof. Pietro Pietrini

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#### Research Interests

Pietro Pietrini is Professor of Clinical Biochemistry and Head of the Functional Exploration of the Brain Program, University of Pisa Medical School (Italy), and coordinates a multidisciplinary integrated research group merging engineering, medical, and biological

scientists. Degree in Medicine and Surgery, Board Certified in Psychiatry and Ph.D. in Neurosciences. Fields of interest: In vivo study of the neurometabolic bases of uni- and multi-sensory perception and integration, cognition and behavior in sighted and blind humans in physiological conditions and during neuropsychiatric processes by using positron emission tomography (PET) and functional magnetic resonance imaging (fMRI) during specific neuropsychological tasks. Over 150 papers and book chapters in peer-reviewed journals including Science, Nature, PNAS.

### 2.34 Dr. Ralph Christian Schroeder

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#### Research Interests

Ralph Schroeder is a James Martin Research Fellow at the Oxford Internet Institute at Oxford University. He was previously Professor in the School of Technology Management and Economics at Chalmers University in Gothenburg. He has written extensively about virtual environments, including two edited books and more than 40 articles. He is continuing his research about how people interact in shared virtual environments and is writing a book on this topic that will link virtual reality technology to other types of computer-mediated communication and new media. Details of his research at

### 2.35 Dr. Randolph Schultz

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Human center ed interaction technologies  
Germany

#### Research interests

Dr. Randolph Schultz got a Masters Degree (Diploma) in Computer Science from the University of Rostock in 1997 and a PhD (Dr.-Ing.) in Computer Science in 2002 (University of Rostock). Since 2003 he is researcher at

Fraunhofer IGD Rostock, focusing his work on complex user tracking and visualisation as well as analysis of the human machine interaction. Further research interests include user interfaces for 3D modelling and virtual reality and rendering.

### 2.36 Mr. Renato Pellegrini

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#### Research Interests

Our company sonicemotion ([www.sonicemotion.com](http://www.sonicemotion.com)) has its major focus on 3D sound reproduction systems. With our expertise on auditory virtual environments (binaural and wave field synthesis reproduction) we have learned a lot about the sense of presence in interactive virtual environments. This know-how is used for

- virtual reality simulation (airplanes, in-car, trains)
- interactive sound installations (museums, dance theaters, theme parks)
- individual augmented reality systems.

Although we run a business rather than being a university, we do research together with our scientific partners at IRCAM (France), TU-Dresden (Germany), TU-Berlin (Germany), EPFL Lausanne (Switzerland). It is through those connections that we also publish scientific research.

### 2.37 Dr. Rod McCall

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#### Research Interests

Rod McCall is an ERCIM Research Fellow at Fraunhofer FIT in Germany, previously he held the same post at CRP-Gabriel Lippmann, Luxembourg. He has undertaken research into many different aspects of virtual environments ranging from navigation, through to usability and sense of place and presence. More recently he has been working alongside the EU funded IPCity project and the PEACH co-ordinated action. Until 2005 he was based at Napier University where he was part of the team which developed a method for evaluating sense of place in real and virtual environments. Other research areas include developing ambient displays for use in collaborative working environments.

### 2.38 Prof. Salvatore Randazzo

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#### Research interests

Salvatore Randazzo is full professor of European Law at University Jean Monnet of Bari-School of Law. Currently he is the Head of the 'Dipartimento di Scienza e storia del diritto'. He teaches Roman Law, European legal Roots and Legal Anthropology. He is visiting professor at New York University and Macquarie University - Sydney. Salvatore Randazzo is a scholar of the common European legal roots, from Roman Law to Modern European Codes. He is author of about 65 publications concerning private and public law in Europe, Legal Philosophy and the social and anthropological impact of new UE context. He is also project-manager of ELR (European Legal Roots), an Erasmus project of thematic network with about 90 partners (Universities - Legal Associations - Academic Institutions) from 33 European countries. He is member of SEAL (Society of evolutionary analysis in Law); Società italiana di scienze etno-antropologiche; Società italiana di Storia del diritto.

### 2.39 Ms. Satoko Kurita

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#### Research interests

I am a doctoral candidate in Indiana University, Bloomington in USA. I have been interested in how and/or what makes people feel presence, especially in terms of emotion and motivation. Since individuals are different in terms of motivational traits, I am interested in investigating how different motivational traits might make people feel presence differently, by interacting media form/contents. Further, philosophical questions such as how studies of consciousness are related to those of presence and how dynamical system approach may help us to understand the mechanism of presence are of my interest. As to the methodology, I use various measures such as self-reports and psychophysiological measurements (i.e. HR, EMG).

### 2.40 Dr. Slawomir Nikiel

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#### Research interests

Dr. Slawomir Nikiel is an Assistant Professor at the Institute of Control and Computation Engineering, University of Zielona Góra. He started working with computer graphics in 1995. His current research interests are focused on image synthesis for real-time computer graphics and virtual environments (mostly for Digital Cultural Heritage projects). One of the topics is to provide intuitive tools for virtual representation of natural phenomena with the development of better modelling algorithms that increase the complexity of computer-generated scenes. His research interests include the fields of mobile media and fractal imaging.

### 2.41 Mr. Steffen Mader

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### Research interests

Steffen MADER joined the Fraunhofer Institute for Computer Graphics (IGD) in 1997. During the years, he was working in several research projects in the areas of Image Processing and Computer Vision as well as 3D Visualization, Virtual and Augmented Reality. Since its formation in 2001 he is working with the "Human-Centered Interaction Technology" research group, which focuses on the capturing, recognition, and interpretation of human affective states. One of his current projects is the design and implementation of an extensible and freely configurable middle-ware framework supporting the processing of human affect-related data and supporting an easy set-up and modification of affective computing applications from a set of components. His interests are further in visualization in general and specifically in visualization of affect related data.

### 2.42 Prof. Stephane Bouchard

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#### Research interests

Stephane Bouchard, who holds a Canada Research Chair in Clinical Cyberpsychology at the Université du Québec en Outaouais is studying the effectiveness of treating anxiety disorders in a virtual reality setting and assessing the treatment mechanisms at play (including the feeling of presence). Another aim of his research is studying the effectiveness of treating anxiety disorders by distance psychotherapy through video-conferencing. His lab uses HMD technology as well as a CAVE-Like system. Dr. Bouchard's research will enable him to identify the factors that influence cyberpsychology therapeutic processes, to reduce the costs of virtual environments dedicated to therapeutic purposes and to give more people access to psychological treatment.

### 2.43 Dr. Tassos A. Mikropoulos

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#### Research interests

- Virtual Environments as mindtools
- Educational Virtual Environments
- Features of Educational Virtual Environments
- Presence in Educational Virtual Environments
- Objective Presence Measures through Electric Brain Activity
- Presence Factors that Influence Learning Outcomes in Educational Virtual Environments.